

# Purchase Knob: The Appalachian Highlands Science Learning Center

*At "Purchase Knob: The Appalachian Highlands Science Learning Center" in Great Smoky Mountains National Park, staff are working towards full integration of scientific research and education, where each function works to maximize the other. Currently, the existing house at Purchase Knob is being renovated with offices, a lab space for scientists to process specimens, an activity pavilion and rest rooms for visiting school groups.*



Students sampling moss for a Tardigrade Inventory.

## Creating Opportunities to Bring Science and Education Together

In the Learning Center's first year of operation, 39 out of 155 permit holders in the Smokies interacted with an educational group. Twenty different scientists were able to extend their stay at the park by spending the night at Purchase Knob.

One remarkable example of an integration of research and education involved Dr. Paul Bartles of Warren Wilson College in Asheville, NC. He is studying Tardigrades (microscopic "water bears") at high elevation sites in the Smokies. Tardigrades can be found living on mosses and lichens. On two of his collecting trips at Purchase Knob, we arranged for a summer camp of at-risk 8th grade students to learn his techniques and assist in collecting Tardigrades.

These 72 students were visibly excited to be involved in "real" science; they had an opportunity to view Tardigrades under microscopes, discovering a world none of them knew existed. One student commented that he was going to be more careful about where he sits now that he knows there are "all those little things everywhere".

## All Taxa Biodiversity Inventory Moves Forward

Over 100 scientists in the Smokies are collecting data towards a massive effort to inventory all species of life in the park called the All Taxa Biodiversity Inventory (ATBI). Where feasible, the Science Coordinator and the Education Coordinator at the Learning Center are working to integrate education into this research.

## Citizen Scientists

Public participants are also involved in the efforts of the ATBI. "Citizen Scientists" are community members that have been trained in research methods to help forward the All Taxa Biodiversity Inventory. This program is run by Discover Life in America, the non-profit that operates the ATBI. Currently, 70 volunteers have donated 2,400 hours.

## Students Help Collect Research Data

Over 700 students contributed 28,080 hours of research time in Learning Center activities throughout the Park. These students, most in middle and high school, helped discover almost 200 species that are new park records.



Don McGowan

Through inventory and monitoring, students are providing distribution information to park managers on hundreds of more species. In addition, new curriculum is being developed for middle school field trips that will involve participants in monitoring salamander populations, assessing the effects of ozone on plants and inventorying soil micro-invertebrates.

## Teachers Updated on Latest Research Methods

Several teacher-training workshops were held including a weeklong seminar in which 24 North Carolina public school teachers were immersed in high elevation research education. 109 Teachers received 130 hours of training in research methods that can be used in their classroom.



NPS Collection

Students involved in various ATBI activities such as a beetle blitz (above) and searching for Tardigrades extracted from moss samples (left).